

Application S.N. 10/518,945
June 5, 2008
Reply to the Office Action dated June 14, 2007
Page 6 of 9

REMARKS/ARGUMENTS

Claims 10, 11, 15, 16, and 20-24 are pending in this application. By this amendment, Applicant amends Claims 10, 15, and 20 and cancels Claims 12-14, 17-19, and 25-28.

Applicant's counsel appreciates the courtesies extended by the Examiner in the interview of May 1, 2008. In the interview, Applicant's counsel explained the differences between the present invention and the applied prior art references. No agreement was reached with respect to the patentability of the claims.

The Title of the Invention was objected to for allegedly not being descriptive. Applicant has amended the Title of the Invention so as to be more descriptive of the invention to which the claims are directed. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this objection.

Claims 10-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang et al. (U.S. 6,863,943) in view of Tanabe et al. (U.S. 6,735,230). Claims 12-14, 17-19, and 25-28 have been canceled. Applicant respectfully traverses the rejections of Claims 10, 11, 15, 16, and 20-24.

Claim 10 has been amended to recite:

A semiconductor device comprising:
a single crystal substrate primarily including zinc oxide and having
a zinc-polar surface and an oxygen-polar surface; and
at least one layer of thin film primarily including zinc oxide disposed
on the zinc-polar surface; wherein
**the at least one layer of thin film includes a multilayer film and
the multilayer film defines a light-emitting layer;**
**the multilayer film includes an n-type contact layer, an n-type
clad layer, an active layer, a p-type clad layer and a p-type contact
layer; and**
**the n-type contact layer is a zinc oxide layer that is in contact
with the zinc-polar surface of the single crystal substrate.** (emphasis
added)

Application S.N. 10/518,945

June 5, 2008

Reply to the Office Action dated June 14, 2007

Page 7 of 9

Applicant's Claim 20 recites features and method steps that are similar to the features recited in Applicant's Claim 10, including the above-emphasized features.

The Examiner alleged that the combination of Wang et al. and Tanabe et al. teaches all of the features recited in Applicant's Claims 10 and 20. Particularly, the Examiner alleged that col. 5, line 64 to col. 6, line 26 of Wang et al. teach a single crystal substrate primarily including zinc oxide and having a zinc-polar surface and an oxygen-polar surface, and at least one layer of thin film primarily including zinc oxide disposed on the zinc-polar surface.

Applicant's Claim 10 has been amended to recite the features of "the at least one layer of thin film includes a multilayer film and the multilayer film defines a light-emitting layer," "the multilayer film includes an n-type contact layer, an n-type clad layer, an active layer, a p-type clad layer and a p-type contact layer," and "the n-type contact layer is a zinc oxide layer that is in contact with the zinc-polar surface of the single crystal substrate." Applicant's Claim 20 has been similarly amended. Support for these features is found, for example, in Claims 12, 14, 25, and 27, paragraph [0049], and in Fig. 1 of the originally filed application.

As interpreted by the Examiner, at best, Wang et al. arguably teaches the broad concept of forming a single crystal substrate primarily including zinc oxide on another single crystal substrate primarily including zinc oxide, which the Examiner alleged corresponds to the features recited in Applicant's originally filed Claim 10. Wang et al. fails to teach or suggest that either of the single crystal substrates could or should include a multilayer film, and certainly fails to teach or suggest that the structure taught by Wang et al. could or should include the feature of "the at least one layer of thin film includes a multilayer film and the multilayer film defines a light-emitting layer," "the multilayer film includes an n-type contact layer, an n-type clad layer, an active layer, a p-type clad layer and a p-type contact layer," and "the n-type contact layer is a zinc oxide layer that is in contact with the zinc-polar surface of the single crystal substrate" as recited in Applicant's Claim 10, and similarly in Applicant's Claim 20.

Application S.N. 10/518,945
June 5, 2008
Reply to the Office Action dated June 14, 2007
Page 8 of 9

Tanabe et al. teaches a light-emitting semiconductor laser chip including various different layers and films made of a variety of materials which define the light-emitting semiconductor laser chip. However, Tanabe et al. fails to teach or suggest that any of the layers or films of the light-emitting semiconductor laser chip could or should be made of zinc oxide, and certainly fails to teach or suggest the features of “the at least one layer of thin film includes a multilayer film and the multilayer film defines a light-emitting layer,” “the multilayer film includes an n-type contact layer, an n-type clad layer, an active layer, a p-type clad layer and a p-type contact layer,” and “the n-type contact layer is a zinc oxide layer that is in contact with the zinc-polar surface of the single crystal substrate” as recited in Applicant’s Claim 10, and similarly in Applicant’s Claim 20.

Accordingly, Applicant respectfully submits that Wang et al. and Tanabe et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of features recited in Applicant’s Claims 10 and 20.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 10 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Wang et al. in view of Tanabe et al.

In view of the foregoing remarks, Applicant respectfully submits that Claims 10 and 20 are allowable. Claims 11, 15, 16, and 21-24 depend upon Claims 10 and 20, and are therefore allowable for at least the reasons that Claims 10 and 20 are allowable.

In view of the foregoing remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicant petitions the Commissioner for a One-Month Extension of Time, extending to June 12, 2008, the period for response to the Office Action dated February 12, 2008.

Application S.N. 10/518,945
June 5, 2008
Reply to the Office Action dated June 14, 2007
Page 9 of 9

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Dated: June 5, 2008

/Christopher A. Bennett #46,710/
Attorneys for Applicant

KEATING & BENNETT, LLP
8180 Greensboro Drive, Suite 850
Tyson's Corner, VA 22102
Telephone: (703) 637-1480
Facsimile: (703) 637-1499

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710